

Appl. No. 10/020,275
In re Yagyu
Reply to Final Office Action of May 3, 2005

REMARKS/ARGUMENTS

The Examiner is thanked for the Final Action dated May 3, 2005. The remarks to follow are intended to be fully responsive to the issues presented in that Action.

Claim 1 were rejected under 35 U.S.C. §103(a) as being unpatentable over Shimizu et al. (USP 5,368,408) in view of Pazdirek et al. (USP 6,398,446) and Kobayashi (USP 5,092,703). These rejections are respectfully traversed in view of the following comments.

Regarding claim 1: the present invention is a combination of the tie rod made of a polymer composite with fiber reinforcement and the metallic ball-joint box or housing. The prior art fails to teach or suggest this combination of components.

Indeed, the Examiner admitted that Shimizu fails to disclose the tie rod made of material comprising a polymer composite with fiber reinforcements, and secured to the metallic ball joint box.

Pazdirek teaches a ball joint assembly including a housing injection molded from a high strength thermoplastic material (not a composite material) and a link formed of an aluminum tube or, alternatively, a composite rod. The Examiner erroneously alleges that the housing of Pazdirek is formed of a composite material and that the metal and composite materials are interchangeable known alternative. The Examiner then alleges that it would have been obvious to one of ordinary skill in the art to modify the tie rod of Shimizu to have a stem made of a

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composite material as taught by Pazdirek "as metal and composite materials are interchangeable known alternatives, and the use of metal tie rod components with composite tie rod components is known within the art."

Applicant respectfully disagrees. Firstly, the fact that the metal and composite materials are not interchangeable is confirmed by Pazdirek himself which discloses that the plastic housing is preferably assembled to the metal link by first heating the end of the metal link to a temperature higher than the softening temperature of the housing. Alternatively, the composite link is adhesively secured to the housing. In other words, the thermal characteristics of the metal and composite materials are very different. Thus, the metal and composite materials are not interchangeable. Secondly, Pazdirek fails to disclose the housing made of metal material, hence the combination of the tie rod made of a polymer composite material with fiber reinforcements and the metallic ball joint box.

Moreover, in accordance with MPEP 2143, in order to establish a *prima facie* case of obviousness, the prior art reference must teach or suggest all the claim limitations. Furthermore, MPEP 2143.01 specifically states that the mere fact that reference can be modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990) Although a prior art device "may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so." 916 F.2d at 682, 16 USPQ2d at 1432.). See also *In re Fritch*, 972 F.2d 1260, 23 USPQ2d 1780 (Fed. Cir. 1992). There is no suggestion to support the Examiner's assertion. Clearly, Shimizu and Pazdirek cited by the Examiner fail to

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disclose or provides any motivation or suggestion to provide the combination of the tie rod made of a polymer composite material with fiber reinforcements and the metallic ball joint box.

Kobayashi also fails to disclose the stem of the tie rod made of material comprising a polymer composite with fiber reinforcements and connected to the metallic ball joint box. Kobayashi teaches a ball joint including a single-piece housing having two inner chambers in which spherical head portions of ball studs are housed, connected by a link. The housing is formed of a composite material composed by mixing inorganic filler, e.g., glass fiber in polypropylene. In other words, Kobayashi fails to disclose the stem of the tie rod and the separate ball joint box made of different materials.

Thus, Applicant respectfully submits that even if the combination of and modification of Shimizu, Pazdirek and Kobayashi suggested by the Examiner could be made, the resulting heat exchanger apparatus still would lack the combination of the tie rod made of a polymer composite material with fiber reinforcements and the metallic ball joint box. In other words, the combination of the prior art documents applied by the Examiner will not result in the combination of materials set forth in claim 1.

Therefore, the Examiner's rejection of claim 1 under 35 U.S.C. 103(a) is improper.

Regarding claim 2: In addition to the above arguments regarding the rejection of claim 1, none of the prior art references applied by the Examiner teaches the composite tie rod attached to the metallic ball joint box by chemical fixing. Thus, one of ordinary skill in the art would not find the invention of claim 2 obvious in view of the teaching of Shimizu, Pazdirek and

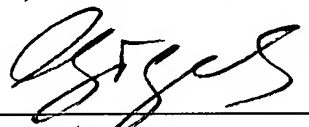
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Kobayashi. Therefore, the Examiner's rejection of claim 2 under 35 U.S.C. 103(a) is improper.

Regarding claim 3: In addition to the above arguments regarding the rejection of claim 1, claim 3 further defines the present invention over the prior art. Therefore, the Examiner's rejection of claim 3 under 35 U.S.C. 103(a) is improper.

It is respectfully submitted that claims 1-3 define the invention over the prior art of record and are in condition for allowance, and notice to that effect is earnestly solicited. Should the Examiner believe further discussion regarding the above claim language would expedite prosecution they are invited to contact the undersigned at the number listed below.

Respectfully submitted:
Berenato, White & Stavish

By: 
George Ayvazov
Reg. N° 37,483

6550 Rock Spring Drive, Suite 240
Bethesda, Maryland 20817
Tel. (301) 896-0600
Fax (301) 896-0607